

SC111002P
patent application**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**Applicant(s): William C. Peatman
Eric S. Johnson
Adolfo C. Reyes

Atty Docket No. SC111002P

Serial No.: 09/592,349

Group Art Unit: 2814

Filed: 06/12/2000

Examiner: D. Wille

TITLE: METHOD OF MANUFACTURING A SEMICONDUCTOR COMPONENT AND
SEMICONDUCTOR COMPONENT THEREOF**FAX TRANSMISSION CERTIFICATE**I hereby certify that this correspondence, pursuant to 37 C.F.R. §1.8, is being submitted via facsimile transmission to The
United States Patent and Trademark Office on:

Date: August 23, 2002

By: [Signature]Printed Name: Sally Hartway**AFFIDAVIT
PURSUANT TO 37 C.F.R. §1.132**Assistant Commissioner of Patents
Washington, D.C. 20231

Dear Assistant Commissioner:

STATE OF ARIZONA)

COUNTY OF MARICOPA)

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I, Jonathan K. Abrokwhah, being duly sworn, depose and say as follows:

I received a Bachelor of Science Degree in Electrical Engineering from the Massachusetts Institute of Technology in 1974. I received a Masters of Science Degree in Electrical Engineering from the Massachusetts Institute of Technology in 1976. I also received a Masters of Science Degree in Materials Science Engineering from the University of Southern California in 1979 and a Doctorate of Science Degree in Electrical Engineering from the University of Southern California in 1979.

I have been employed by Motorola, Inc., Corporate Research Laboratories Sector, since 1990 where I have served in various management and technical capacities, but most recently as Manager for the Advanced Technology Group in the Compound Semiconductor Laboratories of Motorola DDL. Prior to employment with Motorola, my experience and services were retained in various technical and managerial capacities by McDonnell Douglas from 1986 to 1990 and Honeywell from 1979 to 1986. I have, by all accounts, published well over 50 technical papers on semiconductor technology and design. Additionally, I have inventively contributed to 28 issued patents.

When my co-inventors and I developed the inventions corresponding to U.S. Patents No. 5,614,739 and 5,895,929, we were using an undoped GaAs layer having a thickness on the order of 1-5nm; more specifically, in the range of 3-5nm. Neither I nor any of the other inventors of the '929 and '739 patents considered that success could be realized at undoped GaAs thicknesses greater than 5nm. Quite plainly, we didn't think anything greater than 5nm would ever work, which is why the '739 application, for example, teaches layer 17 as being a layer of undoped GaAs that is less than 50 angstroms.

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It was our intent in those applications to disclose and teach the benefits of using an undoped GaAs layer less than around 5nm thick. It was also our intent to teach or otherwise suggest that if modifications of the thickness of this layer were to be explored, that those modifications should be made only in order to reduce the thickness of the undoped GaAs layer down from 5nm. To the extent that we did not believe that any thickness above 5nm would work, we certainly did not want to suggest to the reader that thicknesses greater than 5nm could be used. This would not only have obscured our best mode of invention, but also would have been manifestly contrary to the well accepted belief held by those skilled in the art that only GaAs layers less than about 50 angstroms could ever be made to work. We wanted to be clear that an undoped GaAs layer of something less than the upper value of 5nm would be desired.

When I first heard from William Peatman's group that they were operating above 5 nm, I did not believe it. It was an entirely unexpected result that they would have been able to get their invention to work using a GaAs layer with a thickness greater than 5nm. I was even more surprised when I found out that the commercial implementation of Peatman's technology to actual device fabrication using undoped GaAs layers on the order of 7-7.5nm was yielding highly reproducible and favorable production yields.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful and false statements may jeopardize the validity of the subject patent application or any patent issued thereon.

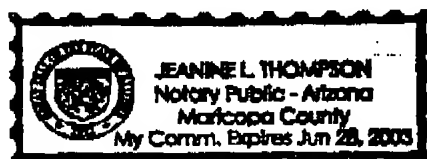
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I further declare that I have received no special compensation or consideration for making this affidavit, nor have I been in any way told, either directly or by implication or inference, by anyone that my employment by Motorola, Inc. or my professional advancement or other matters of personal or professional interest to me depend in any way on whether or not I make this affidavit or the content thereof. I further declare that I make this affidavit of my own free will and choice without any duress or influence of any kind, believing fully in the truth of the statements made by myself herein.

Jonathan K. Abrokwhah
Jonathan K. Abrokwhah

I, Jeanine L. Thompson, a Notary Public in and for the County and State aforesaid, do hereby certify that Jonathan K. Abrokwhah, whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that he signed, sealed and delivered the said instrument as his free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and Notary Seal this 23 day of August, 2002.



Jeanine L. Thompson

My commission expires on June 28, 2003

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